United Nations A/C.4/62/SR.10

General Assembly
Sixty-second session

Official Records

Distr.: General
9 November 2007

Original: English

Special Political and Decolonization Committee (Fourth Committee)

Summary record of the 10th meeting
Held at Headquarters, New York, on Wednesday, 24 October 2007, at 3 p.m.

Chairman: Mr. Mohamad . . . . . (Sudan)

Contents

07-56059 (E)

The meeting was called to order at 3.10 p.m.

Agenda item 31: International cooperation in the peaceful uses of outer space (A/62/20)

Panel discussion on space tools and solutions for climate change

1. **The Chairman**, introducing item 31, said that the theme of the panel discussion was particularly timely in the light of the high-level meeting of the Intergovernmental Panel on Climate Change (IPCC) that had preceded the current session of the General Assembly. It had been held in the context of preparations for the thirteenth session of the Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC) to be held in Bali, Indonesia, from 3 to 14 December 2007, and the awarding of the Nobel Peace Prize jointly to IPCC and to Mr. Albert Gore.

2. Recalling that the current year marked the fiftieth anniversary of the space age, he said that space-based systems were playing an increasingly crucial role in such areas as humanitarian assistance, data collection, communications and the study of climate change. The work of the Committee on the Peaceful Uses of Outer Space (COPUOS), including with regard to the outcomes of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), had contributed greatly to the use of space science and technology to help address the challenges facing humanity. The panel discussion was intended to show how space-based tools were contributing to the improvement of life on Earth for the present and future generations.

3. **Mr. Brachet** (France), speaking in his capacity as Chairman of the Committee on the Peaceful Uses of Outer Space, recalled that over the preceding 50 years there had been tremendous progress in the use of space-based technologies, including satellites in geostationary and low-Earth orbits, for observation of the changing situation on the Earth. The technology available was increasingly sophisticated and great strides had been made in processing the data collected. He underscored the importance of such collaborative efforts as the Global Earth Observation System of Systems (GEOSS) under the guidance of the Group on Earth Observations (GEO), and looked forward to the ministerial summit of that Group to be held in Capetown, South Africa, on 30 November 2007.

4. Space-based technology and observation could not of course provide all the answers to address the planet's problems in such areas as air and water quality, biodiversity and pollution, but could provide an important complement to surface-based observations. In that context he noted the example of international cooperation in the area of meteorology to make the best possible use of satellite resources and the tradition of sharing expertise and results promoted by the World Meteorological Organization (WMO), which provided a model for international cooperation in the use of space-based technology. That model had served as the basis for the establishment of GEOSS.

5. Numerous international meetings were held on the use of space-based technology to study climate change. In that context he noted the conference on space tools and solutions for monitoring the atmosphere in support of sustainable development, organized by the Office for Outer Space Affairs in cooperation with the European Space Agency, in Graz, Austria, in September 2007 and the upcoming workshop on space applications and climate change to be held in Santiago, Chile, in April 2008 in the context of the International Air and Space Fair.

6. He was confident that improvements in space-based observation technologies and new satellite configurations would further enhance the role of space-based resources in measuring, understanding and predicting climate change. It was to be hoped that the international community would take the necessary decisions to limit the effects of climate change and adapt to the changes that had already occurred.

7. **Mr. Rind** (Goddard Space Flight Center, United States National Aeronautics and Space Agency (NASA)), speaking on behalf of the Intergovernmental Panel on Climate Change (IPCC), said that the Panel's most recent data, confirmed by both surface-based observation and satellite data, showed a significant increase in the primary greenhouse-effect trace gases, especially carbon dioxide, as well as methane and nitrous dioxide, over the past 20,000 years, with a particularly marked increase in recent decades. The rate of increase of both concentration levels and radiative forcing of climate change was unprecedented, in spite of the Kyoto Protocol, and was primarily driven by increased use of fossil fuels. The radiative forcing effect of carbon dioxide contributed to global warming whereas aerosols seemed to have a cooling effect. Satellite-based observation would play an

increasingly important role in understanding the effect of aerosols on climate change, just as it had played an important role in observing the role of methane.

8. Mean temperatures had risen over the past 100 years, as confirmed by both surface and satellite sensing, although the situation in the tropics was less clear and required further study. The increase in temperatures in recent decades appeared to be faster than in past centuries and that higher rate of increase seemed to coincide with the increase in greenhouse gases in the atmosphere. The warming trend appeared to be confirmed on the ground by such phenomena as the melting of mountain snow cover and decreases in spring snowfalls. Sea levels had increased by approximately 18 centimetres over the past 100 years according to surface observations, although satellite-based observation from the past 10 years would seem to indicate that the increase in sea levels over the past 100 years was in fact closer to 32 centimetres. For the time being scientists did not know whether that higher rate was more accurate or whether the discrepancy was simply attributable to changes in the observation parameters with satellite-based sensing.

9. Future projections envisaged scenarios ranging from a low of a 25-per-cent increase in greenhouse gases by the year 2030 if the international community completely stopped adding them to the atmosphere, an unlikely scenario, to a 90-per-cent increase. The predicted increase in global surface temperature by 2030 relative to the past 100 years, when temperature had increased by only 0.7 degrees C, ranged from 2 to 4.5 degrees C, or, in an extreme scenario, 6 degrees C. In that context, he pointed out that the most recent ice age had been on average 5 degrees C colder than current global surface temperature and it had taken temperatures 4,000 years to recover. The current projections implied a change of the same magnitude occurring over only 100 years. There was reason to believe that the projections in fact underestimated global warming and in any case all scenarios, even those involving mid-range increases in trace gases, showed higher, and indeed, record temperatures.

10. Precipitation levels were predicted to decrease in the subtropics and lower mid-latitudes but increase in the tropics and higher latitudes. The increase in precipitation in the latter regions should not however be construed as increasing water resources there since higher temperatures would result in increased evaporation and a reduction in soil-moisture levels. He cautioned, however, that projections relating to precipitation and soil-moisture levels remained fairly uncertain.

11. Space-based observation played an essential role in the development of global climate-model simulations, taking into account such data as land surface, changes in trace gases, the atmospheric radiation change in response to those changes, and changes in cloud cover, precipitation and water run-off, that could be used to better understand the Earth's climate and develop projections. If such models could be shown to use space-based and surface data to correctly predict current conditions as confirmed on the ground, their projections of future climate change could reasonably be assumed to be relatively reliable. In that context he underscored the importance of such space-based technologies as the Earth Radiation Budget Experiment in understanding the Earth's radiation budget and its effects on climate.

12. While there had been relatively little study of the possible effects of climate change in the tropics, the situation in the northern hemisphere seemed to confirm projections of the biological and hydrological effects of changes in temperature and precipitation levels. Those effects could be seen in earlier bird-migration patterns and egg-laying, earlier flowering of plants and trees, the spread of certain insect species poleward and the spread of tree cover higher up mountains. The most vulnerable ecosystems in the future appeared to include coral reefs, tundra regions and boreal forests, the subtropics and Mediterranean, low-lying coastal areas, salt marshes and water resources in mid-latitudes, although currently available data remained inconclusive. The effect of global warming on water resources could be severe, although it was still difficult to accurately predict changes in precipitation and soil-moisture levels. An increase in global temperature could of course also adversely affect human health and encourage the spread of infectious diseases.

13. He recalled that global mean temperature had increased by 0.7 degrees C since the early 1900s. There was a consensus that further increases in surface temperature would have a negative effect but owing to the lack of a suitable comparator in the past, it was difficult to predict exactly what the effect would be. The current changes and projections represented an unprecedented and dangerous rate of increase. It was not yet clear how rapidly the planet's ecosystem could respond; some experts suggested that an increase of

2 degrees C would bring the planet to a critical threshold where there would be massive extinctions and water resources would become increasingly scarce. Others were of the view that a critical threshold had already been reached, for example in the polar regions. It was, however, impossible to prove such hypotheses analytically because the systems involved were so complicated.

14. Climate change would certainly have an effect on air and water quality, people's health, the world economy and biodiversity. Disputes over water resources, for example, might be resolved through the use of force. The central question was how to mitigate the effects of or adapt to climate change, and at what cost, while still ensuring sustainable development. A concerted effort to drastically reduce climate change might come at the cost of continued sustainable development, although some experts had estimated that 1 per cent of world GDP would be sufficient to limit carbon-dioxide levels to 550 parts per million, still twice the level of the pre-industrial era, with minimal effect on sustainable development. Even that level could lead to a 3-degree C increase, more than the 2-degree C critical threshold identified by some scientists. What was certain, however, was that the cost of doing nothing would be incalculable.

15. He recalled that the role of IPCC was to study human-induced climate change. Working Group I of IPCC dealt with the science of climate change as caused by human activity, Working Group II with currently observable impacts of climate change, for example, on ecosystems in the polar regions and at low levels and lower latitudes, although the real effects of climate change were only beginning to be understood. Working Group III dealt with mitigation of climate change, which seemed to be possible to some extent, although there were those who believed that even bringing the atmosphere back to 550 parts carbon dioxide per million was beyond the bounds that sustainable development would allow. Remote-sensing tools would continue to play a crucial role in collecting data, monitoring conditions and predicting trends, and he stressed the need to allocate sufficient resources for that purpose. Validation and improvement of models for future projections required the continued development of satellite-based instruments to better understand how the climate system was working — for example the role of clouds and aerosols, the very physics of the system — in order to strengthen confidence in the projections generated by the models for various scenarios of future trace-gas releases.

16. **Mr. Stryker** (Committee on Earth Observation Satellites (CEOS)) said that the work of the Committee had focused on climate change in the context of the United Nations Framework Convention on Climate Change (UNFCCC) and the Intergovernmental Panel on Climate Change (IPCC). Satellite observations could provide a unique and comprehensive vantage point for earth-observation processes and ensured data continuity and reliability. Taking on board the findings of both the Panel and the Group on Earth Observations (GEO), the Committee had reorganized its work to address the critical issues of Earth observations and climate change.

17. At the tenth session of the Conference of Parties to the Framework Convention, the Committee had been requested to provide the space agencies' coordinated response to the requirements of the space-based component of the Global Climate Observing System (GCOS). The Committee's response consisted of 59 actions aimed at fulfilling observation needs in the atmosphere, ocean and terrestrial domains, as well as a number of cross-cutting domains. The aim was to allow national and regional agencies worldwide to develop a more coordinated approach to climate observations.

18. The Committee had also worked with the Group on Earth Observations with a view to integrating satellite observation systems and identifying measures to minimize data gaps. The Group and the Panel were working on similar climate-change issues, including severe weather, threat to water supplies, disruptions to agriculture, impacts on health and disease, changes to the energy supply and biodiversity and threats to the ecosystem. The Committee had worked closely with the Group since its inception and had developed a workplan for addressing the space-based component of the Global Earth Observation System of Systems (GEOSS). It had developed the "Virtual Constellations Concept", which used multiple satellites, ground systems and related data-delivery systems from various CEOS members to provide information to decision makers in four areas: atmospheric composition; ocean-surface topography; precipitation; and land-surface imaging. It was the Committee's conclusion that earth-observation satellites provided the most important contribution to global measurements and the most accurate means of measuring climate change.

19. **Mr. Stevens** (United Nations Office for Outer Space Affairs) said that the number and scale of disasters continued to grow as a result of both natural hazards and climate change. Space-based information, such as satellite communications, images from earth-observation satellites and global-navigation satellite systems could provide solutions to complex emergencies. The role of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (SPIDER) was to provide universal access to all types of space-based information and services relevant to disaster management. Its network of regional support offices consisted of centres of expertise in the use of space technology in disaster management. The national focal points were nominated by Governments to strengthen national disaster-management planning and policies and to support specific national activities using space-based technology for disaster management.

20. In order to provide space-based data and information in the event of emergencies caused by major disasters, various space agencies had established the International Charter on Space and Major Disasters, which had responded to floods, earthquakes and other disasters. The Global Earth Observation System of Systems (GEOSS) focused on nine benefit areas: reduction and prevention of disasters; human health and epidemiology; energy management; climate change; water management; weather forecasting; ecosystems; agriculture; and biodiversity. However, the Platform still had an important role to play in complementing those systems: it was effective but needed further development. Following the earthquake in Peru in 2007, the Platform had successfully activated the Charter to coordinate the provision of data for emergency relief. However, it had not had the capacity to respond to the floods in Uganda in 2007. With additional resources, it could make data available to all developing countries in the event of disasters and emergencies.

21. **Mr. González** (Chile) recalled that, in April 2008, his country would host a workshop on space applications and climate change at the International Air and Space Fair in the context of the Millennium Development Goals. He said it was important for representatives from the developing countries to have a presence on panels such as that dealing with the issue of space tools and solutions for climate change.

22. **Ms. Pessôa** (Brazil) requested clarification on the coordination role of the Group on Earth Observations and on the mechanisms used by SPIDER in identifying the national focal points.

23. **Mr. Ali** (Sudan) said that it would be interesting to learn more about the coordination mechanisms used by SPIDER and the regional and national institutions in monitoring and dealing with catastrophes, and about the activities of SPIDER in providing capacity-building to national institutions.

24. **Mr. Stryker** (Committee on Earth Observation Satellites) said that GEOSS was designed to ensure compatibility among systems rather than integrate systems. The aim of the "Virtual Constellations Concept" was to better coordinate various satellite missions that carried out comparable observations and to facilitate a more integrated approach so as to address the data gaps and requirements of the user community. With regard to the representation of the developing countries, he noted that in November 2007 the South African Council on Scientific and Industrial Research would assume the chairmanship of CEOS and it was hoped that the Council would develop new relationships in the developing world.

25. **Mr. Stevens** (United Nations Office for Outer Space Affairs) said that the national focal points were nominated by each Member State, and that one of the Platform's goals was to ensure that all Member States had access to the various coordination mechanisms and outreach activities. In cooperation with the Government of the Sudan, a four-day workshop would be held in the Sudan in December 2007. It would be the first regional workshop of SPIDER in Africa and Western Asia.

26. **Mr. Brachet** (France), speaking as Chairman of the Committee on the Peaceful Uses of Outer Space, introduced the Committee's report (A/62/20). He said that the integrated and coordinated use of space technologies could play a crucial role in supporting disaster management by providing accurate and timely information. In that connection, in order to make the SPIDER programme fully operational, he urged Committee members to adopt the draft omnibus resolution on international cooperation in the peaceful uses of outer space, that would provide the programme with the necessary resources.

27. Among its achievements in 2007, COPUOS had endorsed voluntary guidelines on the mitigation of

space debris. Such guidelines would increase mutual understanding as to what constituted acceptable activities in space and decrease the likelihood of friction and conflict.

28. The Legal Subcommittee had endorsed the recommendations of its Working Group on the Practice of States and International Organizations in Registering Space Objects; those recommendations constituted the basis for the draft resolution to be submitted on that issue. The work on registration practice, as well as the workplan for 2008-2011 on the general exchange of information on national legislation relevant to the peaceful exploration and use of outer space, would further advance the application of the legal regime for outer space that had been established by the 1967 Outer Space Treaty.

29. The Working Group on the Use of Nuclear Power Sources in Outer Space of the Scientific and Technical Subcommittee had made progress in identifying and developing an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear-power-source applications in outer space. To that end, the Subcommittee had decided to establish a joint group of experts in partnership with the International Atomic Energy Agency (IAEA) tasked with establishing a safety framework for nuclear-power-source applications in outer space.

30. In conclusion, he said he would introduce a draft resolution in the Working Group of the Whole covering decisions by COPUOS and its two Subcommittees regarding their work for 2008.

31. **Mr. Maleki** (Islamic Republic of Iran) said that space science and technology, particularly remote sensing and earth observation, could help developing countries to manage their natural resources and to prevent or mitigate the of effects natural disasters. His country supported the implementation of SPIDER and was cooperating with other Member States in order to implement the recommendations of UNISPACE III. There should also be a closer link between the implementation of those recommendations, coordinated by COPUOS, and the work being carried out by the Commission on Sustainable Development.

32. Space law should serve as the basis for international cooperation in outer space. In that regard, the Iranian Space Agency (ISA) had held a workshop on space law in Tehran in May 2004 and hoped to organize a similar one in the near future with the cooperation of the United Nations Office of Outer Space Affairs.

33. In order for humanity to derive the greatest possible benefit from space technology, that technology should not be used for military purposes. The militarization of outer space would create tensions between nations and hinder the deployment of space technology in support of sustainable economic and social development. It was the responsibility of all States, particularly those with major space capabilities, to make every effort to prevent an arms race in outer space.

34. **Mr. Mahmood** (Pakistan) said that the insistence of States with major space capabilities on incorporating the use of outer space in their military doctrines threatened to spark an arms race in outer space. COPUOS had an important role to play in preventing such an arms race and, in that connection, should establish a working relationship and channels of communication with the Committee on Disarmament in the context of their complementary roles.

35. The increasing commercialization of outer space and the involvement of the private sector also required close attention. The gaps in the international legal frameworks which regulated activity in outer space needed to be addressed. Developments in space technology and the universal interest in its applications required the elaboration of new legal norms. In that regard, his delegation supported the negotiation of a comprehensive convention on space law.

36. Pakistan had made considerable progress in the application of space technology in various fields of national importance ranging from education to telemedicine, agriculture and natural-resources management.

37. **Mr. Taleb** (Syrian Arab Republic) said he was pleased that, in its report, COPUOS had stressed that local and regional needs and capabilities must be taken into consideration when implementing the recommendations of UNISPACE III. He also welcomed the initiative of Chile to hold a workshop, on space applications and climate change (A/62/20, para. 80).

38. Greater transparency would strengthen the peaceful and responsible nature of scientific activities in outer space. It was important to increase the involvement of developing countries in the peaceful

uses of outer space. His delegation welcomed the assistance provided to developing countries and countries with transitional economies by the United Nations Programme for Space Applications. However, he was alarmed by the paucity of funds available and called on donors to continue their funding of the Programme.

39. The introduction of weapons into outer space could undermine efforts for its peaceful uses, and his country, as a member of the Conference on Disarmament, continually strived to prevent that from happening.

40. **Mr. Perazza** (Uruguay), speaking on behalf of the member countries of the Common Market of the South (MERCOSUR) and associated countries, said that in the year that marked the fiftieth anniversary of the space age and the fortieth anniversary of the Outer Space Treaty, no nation in the world could forgo space technology and its applications in so many essential spheres. It was a source of satisfaction that a growing number of countries in South America had space programmes of their own, the two most recent being the Bolivarian Republic of Venezuela and Colombia.

41. The new agenda item considered by the Committee on the Peaceful Uses of Outer Space at its latest session, on international cooperation in promoting the use of space-derived geospatial data for sustainable development, had prompted a useful debate that should benefit developing countries as they applied such data in vital areas.

42. MERCOSUR and its associated States continued to advance regional cooperation within the framework of the various Space Conferences of the Americas. At the latest, in 2006, all participating States had been encouraged to establish a national space body in preparation for the subsequent creation of a regional space body that would enhance the application of space science and technology in the region. The 2008 meeting to be held in Chile in preparation for the 2009 Conference would focus on space technology and climate change in the context of the Millennium Development Goals.

43. The free exchange of satellite data among the MERCOSUR countries had made it possible for them to apply the principles relating to remote sensing of the Earth from outer space. Such South-South cooperation had, together with other regional and multilateral initiatives, helped to improve the quality of life of their citizens. Moreover, the strengthened institutional capacity in the region had enhanced the ability to use space information. In the area of disaster management, Argentina had trained local project managers for the various Central and South American countries; and an Italian/Argentine disaster-management system was using six synthetic aperture radar (SAR) satellites, one of them already in orbit, as remote-sensing tools. A first seminar on the application of geotechnologies to prevent or mitigate natural disasters had also been held in Brazil at the regional space science and technology education centre there. MERCOSUR was also working with the United Nations Office for Outer Space Affairs to develop an epidemiological warning system; and Argentina had in 2007 offered advanced training in epidemiology which the various countries of the region could apply according to their specific needs.

44. In keeping with its advocacy of the peaceful uses of outer space, MERCOSUR condemned the deployment of any weapons system in outer space as a threat to international peace and security and human development. It sought closer working relations with scientific bodies such as the International Institute for Applied Systems Analysis (IIASA), so as to take advantage of projects that had particular relevance for Latin America. MERCOSUR considered it indispensable to use outer space exploration technologies to combat desertification, which was a growing problem, in some regions.

45. MERCOSUR supported the important work being done by the Legal Subcommittee in analysing the legal implications of space applications and climate change; and it was committed to strengthening the international legal regime governing outer space so that it would be preserved for peaceful purposes.

46. **Ms. Hernández Toledano** (Cuba) observed that with the advance of space technology had come an increasing concern about the inherent danger of an arms race in outer space. The widening gap between the developed countries and the developing countries made it ever more difficult for all States to enjoy their universally recognized right to benefit from space research and its applications. For the foreseeable future, not all developing countries would be able to participate in space activities unless there was an immediate expansion of bilateral and multilateral cooperation. Greater regional and international cooperation through an exchange of experience and

technology was vital, especially in the field of climate change.

47. The geostationary orbit was a limited natural resource over which no State or group of States could exercise absolute control to the detriment of the rights of others, and legal norms for its rational use had to be developed. Likewise, non-discriminatory access to remote-sensing data had to be guaranteed, as they were crucial for sustainable development; and the developing countries had to be helped to develop the capacity to use remote-sensing technology for the needs of their people. Cuba also welcomed the SPIDER programme and hoped that it would be operated so as to allow developing countries in particular to benefit from it.

48. The currently applicable legal regime was inadequate to prevent an arms race in outer space. Therefore, the Conference on Disarmament, must urgently take the lead in negotiating a multilateral agreement on the prevention of an arms race in outer space. Outer space must be protected in accordance with three basic principles governing its exploration and use by States: first, outer space must be preserved for exclusively peaceful purposes, and international cooperation and the economic growth of all countries must be fostered with a view to sustainable development; secondly, any plans for the deployment of weapons in outer space must be rejected; and thirdly, adequate monitoring and verification mechanisms must be adopted as part of space law.

49. **Ms. Knight** (United States of America) commended the work done in the past year by the Committee on the Peaceful Uses of Outer Space and its Subcommittees, with the help of the particularly well-run Office for Outer Space Affairs. In its 50 years of service to the world community, COPUOS had acted as a catalyst, promoting international cooperation in space activities and fostering a broad exchange of information among spacefaring and non-spacefaring nations on the latest advances in space exploration and the resulting benefits.

50. The Outer Space Treaty adopted 40 years earlier had established the principle of freedom of exploration and use of outer space by all States, and created a legal framework for the sharing of benefits. The various treaties and sets of non-binding principles adopted subsequently by COPUOS had generated an entirely new branch of international law. At its most recent session, the Legal Subcommittee had brought its work on the practice of States and international organizations in registering space objects to a highly successful conclusion. The new item that the Subcommittee had added to its agenda, namely, a general exchange of information on national legislation relevant to the peaceful exploration and the use of outer space, should prove to be extremely interesting, as should the topic of capacity-building in space law.

51. The Scientific and Technical Subcommittee had also had a highly productive session, reaching consensus on a set of space-debris-mitigation guidelines, which were solid, technically based measures that should be adopted and implemented by all spacefaring nations. Her Government's national agencies were well advanced in implementing debris-mitigation practices consistent with the Inter-Agency Space Debris Coordination Committee (IADC) Guidelines and those just endorsed by the Subcommittee.

52. That positive international development had been tarnished by the intentional destruction of a satellite by China in January 2007, which had created thousands of large pieces of space debris, most of which would remain in orbit for more than 100 years, and a much greater number of smaller but still hazardous pieces of debris constituting a risk to the space flights and space infrastructure maintained by many nations in accordance with international agreements. There was a contradiction between China's efforts within COPUOS and IADC aimed at the mitigation of space debris, and its intentional creation of long-lived space debris in violation of one of the basic guidelines. It was therefore all the more important to conclude work on the space-debris-mitigation guidelines as a clear message to the world community.

53. Her delegation was pleased that the Scientific and Technical Subcommittee's Working Group on the Use of Nuclear Power Sources in Outer Space would be proceeding over the next few years to develop an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable space applications, in collaboration with IAEA. It also welcomed the addition of a new item on global navigation satellite systems to the Subcommittee's agenda, allowing providers and users of that important service to exchange information on recent developments, particularly in developing countries. The Office for Outer Space Affairs had

provided outstanding support for recent meetings in that field.

54. The United States continued to support the multi-year workplan on the International Heliophysical Year, a truly international endeavour, with countries from every region of the world hosting instrument arrays, providing scientific investigators or offering supporting space missions. The Year focused worldwide attention on solar-terrestrial physics research, so important to daily lives, the environment and space systems.

55. COPUOS had produced useful results on a number of important topics, particularly the spin-off benefits of space exploration, the use of space-derived geospatial data for sustainable development, an item on space and society with emphasis on education, and the need to strengthen that Committee's role in promoting international cooperation so as to preserve outer space for peaceful purposes.

56. **Ms. Chen** Peijie (China) speaking in exercise of the right of reply, said that China took the problem of space debris very seriously and had made great efforts to minimize it. The United States delegation would do well not to criticize other countries but rather to consider if her Government had made comparable efforts.

The meeting rose at 6 p.m.